

Evaluation of knowledge & awareness of medical students on HIV/AIDS before and after teaching curriculum

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Abstract

Introduction: The HIV/AIDS pandemic has become one of the most important public health problems in recent times. India has the 3rd highest number of estimated people living with HIV/AIDS (PLHA) in the world. It is an urgent necessity that the doctors of tomorrow are prepared to deal with the many outcomes of the spread of HIV infection in the community. WHO strongly recommends the incorporation of knowledge of HIV/AIDS in medical syllabus starting from the 1st year. **Methods:** A Prospective study was conducted to assess the knowledge and awareness of medical students and effectiveness of curriculum on HIV/AIDS at RIMS Medical College, Kadapa, Andhra Pradesh in July and September 2015. 150 students of 4th semester were included after taking their consent. A questionnaire having 30 items of closed ended except three and subjective items were administered. Base line knowledge was assessed by pretest evaluation. Post-test evaluation was done two months after teaching curriculum for two hours. **Results:** The knowledge of students after teaching curriculum regarding HIV/AIDS was high in all aspects when compared to pre intervention. **Conclusions:** Awareness of students on HIV/AIDS was improved in post-intervention assessment.

1. Few students (11/150) only knew about p 24 antigen.
2. Students' knowledge about vertical transmission and non-modes of transmission of HIV still needs intervention.
3. Regarding vulnerable groups, symptoms and testing strategies – their awareness was poor.

Key words: Curriculum, Medical Students, HIV/AIDS

Introduction

The HIV/AIDS pandemic has become one of the most important public health problems in recent times and it is having a profound impact on the lives of infected people and their families [1]. And it has full impact on developing countries in the eastern hemisphere, focusing especially on Asia. The major brunt of the HIV epidemic has been in South and South-east Asia—predominantly in India and Thailand [2]. India has the 3rd highest number of estimated people living with HIV/AIDS (PLHA) in the world [3]. Even though anti-retroviral treatment for HIV/AIDS can slow down the course of the disease, there is no known cure or vaccine. Preventing the infection is the key aim in controlling the AIDS pandemic [4].

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Health care providers, particularly physicians, will also have to learn to protect themselves and those that come to them for medical help. However, it is an urgent necessity that the doctors of tomorrow are prepared to deal with the many outcomes of the spread of HIV infection in the community. What is needed is a conscious decision to focus and stress those aspects that are important to HIV medicine and to use examples from HIV when teaching general principles. The teaching of the different elements of the core curriculum would then permeate through the entire course, with almost every department taking an important responsibility. By involving all the teaching departments in meeting the objectives defined for the overall course in HIV medicine for undergraduate medical students, the course can be smoothly

incorporated into the curriculum with no apparent extra burden on the student. Particularly in the case of a newer subject of learning such as HIV/AIDS, assessments can guide the teachers as well as the students about parts of the course that have been successful and parts which need to be improved [5]. With the above background we made an attempt to assess the impact of curriculum on HIV/AIDS on the knowledge of medical students.

Aims & Objectives

1. To assess the knowledge and awareness of Medical students on HIV/AIDS before and after teaching on the curriculum of HIV
2. To assess the effectiveness of curriculum on HIV/AIDS in acquiring the knowledge of medical students.

Material & Methods

Results

Almost all students knew about World AIDS day. The knowledge of students before teaching curriculum regarding acronym of NACO, influence of HIV on immune system, receptor & unique enzyme for HIV was around 50% as shown in Table 1 & 2. First antigen to appear in blood after infection was not known by most of them even in post intervention session. The percentage of students who answered correctly regarding Modes of Transmission of HIV/AIDS, routes by which HIV/AIDS is not transmitted was high in post intervention test as shown in Table 3 and 4. Awareness on HIV/AIDS, as it is not transmitted by sharing of rooms, toilets & clothes was improved in post intervention evaluation as shown in Table 4.

Table 1: Showing results on current affairs

Item	Pre-test Number (%) (Total no-150)	Post-test Number (%) (Total no-150)	Chi –square (df)	p value
World AIDS day	144 (96)	149 (99.33)	3.65(1)	>0.05
Acronym of NACO	72 (48)	145 (96.66)	88.76(1)	<0.001
Red ribbon stands for	23 (15.33)	128 (85.33)	147(1)	<0.001
AIDS slogan for 2014	-	1		

Table 2: Showing results on knowledge about HIV

Item	Pre-post Number (%) (Total no-150)	Post-test Number (%) (Total no-150)	Chi –square (df)	p value
Influence on Immune system	87 (58)	110 (73.33)	7.82(1)	<0.01
Receptor for HIV virus	65 (43.33)	106 (70.66)	22.86(1)	<0.001
Unique enzyme in HIV virus	67 (44.66)	124 (82.66)	46.81(1)	<0.001
1 st Ag to appear in blood	1	11 (7.33)	8.68(1)	<0.005

A Prospective study was conducted at RIMS Medical College, Kadapa, Andhra Pradesh in July and September 2015. 150 students of 4th semester were included after taking their consent. The aim of the study was explained to them beforehand. The importance of answering the questionnaire without consultations/discussions was stressed. A questionnaire having 30 items of closed ended except three and subjective items were administered for both pre & post-test evaluation. Questionnaire was prepared in such a way to assess the knowledge of students on current updates, HIV antigens & enzymes, modes of transmission, symptoms, vulnerable groups, opportunistic infections, testing strategies, treatment and preventive methods. Base line knowledge was assessed by pretest evaluation. Post-test evaluation was done two months after teaching curriculum for two hours.

Statistical Analysis: Chi- square test was used to analyze the obtained data (2 X 2 contingency table).

Table 3: Showing results on Modes of Transmission of HIV/AIDS

Modes of transmission	Pre-test Number (%) (Total no-135)	Post-test Number (%) (Total no-130)	Chi –square (df)	p value
Sexual route	110 (73.33)	147 (98)	37.16(1)	<0.001
Blood Transfusion	105 (70)	135 (90)	18.75(1)	<0.001
Vertical transmission	35 (23.33)	43 (28.66)	1.10(1)	>0.1
Contaminated needles & syringes	42 (28)	67 (44.66)	9.00(1)	0.005
All	5 (3.33)	19 (12.66)	8.87(1)	<0.005

Table 4: Showing results on modes by which HIV/AIDS is not transmitted

modes by which HIV/AIDS is not transmitted	Pre-test Number (%) (Total no-150)	Post-test Number (%) (Total no-150)	Chi –square (df)	p value
1. Touch & Hand shake	113 (75.33)	126 (84)	3.47(1)	>0.05
2. Hugging	7 (4.66)	30 (20)	16.3(1)	<0.001
3. Sharing of rooms, toilets & clothes	46 (30.66)	91 (60.66)	27.20(1)	<0.001
4. Playing together	0	2 (1.33)		
5. Eating together	44 (29.33)	32 (21.33)	2.53(1)	>0.1
6. Dry kiss	11 (7.33)	37 (24.66)	16.76(1)	<0.001
7. Mosquito bite	12 (8)	11 (7.33)	0.04(1)	>0.5

Table 5: Showing results on vulnerable groups of HIV/AIDS

Name of the vulnerable group	Pre-test Number (%) (Total no-150)	Post-test Number (%) (Total no-150)	Chi –square (df)	p value
Commercial sex workers	7 (4.66)	15 (10)	3.13(1)	>0.05
Truck drivers	-	15 (10)		
Repeated blood transfusions	2 (1.33)	4 (2.66)	0.68(1)	>0.5
Intra venous drug users	-	5 (3.33)		
Persons with multiple sex partners	-	5 (3.33)		

Table 6: Showing results on symptoms of HIV/AIDS

Symptoms	Pre-test Number (%) (Total no-150)	Post-test Number (%) (Total no-150)	Chi –square (df)	p value
Fever	13 (8.66)	33 (22)	10.27(1)	<0.005
Diarrhea	2 (1.33)	3 (2)	0.20(1)	>0.5
Weight loss	34 (22.66)	44 (29.33)	1.73(1)	>0.1
Generalized lymphadenopathy	-	14 (9.33)		

The knowledge of students regarding vulnerable groups, symptoms of HIV/AIDS, testing centers and strategies, treatment & prevention, indicator diseases of HIV/AIDS and opportunistic infections in HIV/AIDS was high after intervention as shown in Table 5-10.

Table 7: Showing knowledge on HIV & AIDS Testing

Item	Pre-test Number (%) (Total no-150)	Post-post Number (%) (Total no-150)	Chi –square (df)	p value
ICTC stands for	32 (21.33)	46 (30.66)	3.39 (1)	>0.05
PPTCT stands for	25 (16.66)	66 (44)	26.51(1)	<0.001
Strategies for HIV testing	13 (8.66)	36 (24)	12.9 (1)	<0.001
Number of tests in ICTC	5 (3.33)	32 (21.33)	22.47 (1)	<0.001
Number of tests in Blood Bank	9 (6)	18 (12)	3.29 (1)	>0.05
DBS stands for	-	3 (2)		

Table 8: Showing knowledge on Treatment & Prevention

Item	Pre-test Number (%) (Total no-150)	Post-test Number (%) (Total no-150)	Chi –square (df)	p value
Zidovudine in PEP	4 (2.66)	86 (57.33)	104.5 (1)	< 0.001
PEP should be taken within 2hrs	2 (1.33)	43 (28.66)	43.94 (1)	< 0.001
PEP should be taken within 72hrs	24 (16)	75 (50)	39.21 (1)	< 0.001
Start treatment when CD4 count is<200	10 (6.66)	51 (34)	34.59 (1)	< 0.001
HAART means	18 (12)	43 (28.66)	12.86 (1)	< 0.001
Is there any drug to prevent vertical transmission- Yes	97 (64.66)	119 (79.33)	8 (1)	< 0.005
Name of the drug to prevent vertical transmission	-	33 (22)		
Right choice to prevent HIV during Sex	109 (72.66)	138 (92)	19.27 (1)	< 0.001
No Permanent cure for HIV infection	119 (79.33)	147 (98)	26 (1)	< 0.001
No vaccine for HIV/AIDS	131 (87.33)	126 (84)	0.67 (1)	>0.1

Table 9: Showing results on Indicator Diseases of HIV/AIDS

Name of the Disease	Pre-test Number (%) (Total no-135)	Post-test Number (%) (Total no-130)	Chi –square (df)	p value
Extensive tuberculosis	48 (32)	92 (61.33)	25.92(1)	<0.001
Esophageal candidiasis	2 (1.33)	33 (22)	31.08(1)	<0.001
Kaposi’s sarcoma	5 (3.33)	20 (13.33)	9.81(1)	<0.005
Others like toxoplasmosis, Generalized Strongyloidosis, PCP, Cryptococcus meningitis, lymphomas, CMV retinitis etc	2 (1.33)	21 (14)	16.99 (1)	<0.001

Table 10: Showing results on opportunistic Diseases in HIV/AIDS

Name of the Disease	Pre-test Number (%) (Total no-150)	Post-test Number (%) (Total no-150)	Chi –square (df)	p value
Candidiasis	3	44 (29.33)	70.12	<0.001
Tuberculosis	14	78(52)	64.21	<0.001
Cryptococcal meningitis	0	20 (13.33)		<0.001
Toxoplasmosis	2	22 (14.66)	18.11	<0.001
Others (PCP, , diarrhea due to Isospora, C.parvum, CMV retinitis, Histoplasmosis, etc)	2	18 (12)	13.71	

Discussion

Health education, particularly Information, Education and Communication (IEC) and Behaviour change Communication (BCC) are the key strategies for controlling HIV/AIDS epidemic [6]. Several studies were in agreement with the fact that health education intervention definitely has a positive effect on awareness levels regarding HIV/AIDS [4,7,8]. Properly integrating HIV training into the medical school curriculum improves knowledge of medical students [9]. An integrated course curriculum involving principles of both primary and palliative care principles will improve the efficiency of the undergraduate medical education programme [10]. By involving all the teaching departments in meeting the objectives defined for the overall course in HIV medicine for undergraduate medical students, the course can be smoothly incorporated into the curriculum with no apparent extra burden on the student [5].

The knowledge of students after teaching curriculum regarding HIV/AIDS was high in all aspects when compared to pre intervention. Awareness and knowledge of students was improved very much in post intervention session regarding several facts about HIV/AIDS. But they were unaware that P²⁴ antigen is the 1st antigen to appear in blood and it is an important marker in early diagnosis of HIV/AIDS. Awareness on vertical transmission was also poor, which is important in preventing transmission to newborns. They should acquire knowledge about the modes by which HIV/AIDS is not transmitted. Being future medical practitioners they should have complete knowledge about transmission and non-transmission routes to alleviate misconceptions in society.

Prevention is better than cure. If health care providers know who are vulnerable to HIV/AIDS, they could concentrate on these groups for implementation of preventive measures. Unless clinicians know when to suspect HIV/AIDS, they cannot diagnose the infection. Especially in case of HIV/AIDS high suspicion is needed for early diagnosis. Being future clinicians, medical students should be trained in these aspects. Around 50% knew about PEP and only 22% were aware that nevirapine prevents vertical transmission. It is must to understand the signs and symptoms of opportunistic infections (OI) which commonly strike HIV sero positive individuals. By that early detection and treatment of OI will improve the quality of life of

HIV sero positive individuals. Students' knowledge about indicator diseases and opportunistic infections was still lagging behind in post intervention session. Their knowledge in the above aspects requires further intervention.

A study by Sandheep sugandh et al revealed that 94.8% of students were having knowledge that there is no complete cure for AIDS before the intervention. After health education, all the students in their study gained the knowledge about this. In the same study, 92.4% of students knew that AIDS is preventable and 93.6% gained this knowledge in post-intervention assessment. In their study, 76.8% were having knowledge about non-availability of effective vaccine for AIDS and after the health education session, 91.2% got the knowledge [4].

In the present study 79.33% & 98% knew that there was no permanent cure, 87.33% & 84% were aware that there was no vaccine and 72.66% & 92% were have knowledge that HIV/AIDS can be prevented by barrier contraceptives like condoms. It was surprising that in post-intervention assessment less number of students answered the non-availability of vaccine for HIV/AIDS than pre intervention assessment. Probably they were mistaken the trails of HIV vaccine for its availability. Whatever maybe the reason they should be educated in the fact that vaccine is not available for HIV/AIDS at present and should be reassessed. Particularly in the case of a newer subject of learning such as HIV/AIDS, assessments can guide the teachers as well as the students about parts of the course that have been successful and parts which need to be improved [5].

Pre and post test evaluation in medical students on HIV/AIDS was done in few studies and they are not of open ended. So it is difficult to compare with those studies. Post test evaluation was done after an interval of two months of curriculum intervention, so that answers should be recollected from their memory. Probably this was the reason for not getting still better results even though the obtained results were satisfied.

There is a strong need for imparting HIV related education right from the very beginning of medical curriculum so as to demystify misconceptions among medical students [6,11]. The school education system all over the world play a major role in shaping the attitudes, opinions and the behavior of young people [12]. Curriculum on HIV/AIDS played an important role on the awareness and knowledge of students on

HIV/AIDS [13]. Some other studies also opined that intervention definitely improved the knowledge of individual on HIV/AIDS in several aspects [14,15].

WHO strongly recommends the incorporation of knowledge of HIV/AIDS in medical syllabus starting from the 1st year. First is the understanding of and skills in the management of a chronic HIV disease with a gamut of associated opportunistic infections; second is the need to overcome prejudicial attitudes that can impede high quality care, and third is the development of skills in coping with the psychological demands of certain types of care of patients. Experience shows that while dealing with subjects like STI, HIV and AIDS, their teaching should be integrated and carried out jointly by teachers from many disciplines, e.g. medicine, preventive medicine, and social and behavioural sciences. Moreover, many institutions have found that innovative teaching-learning methods are better at influencing attitudes [5]. At present the medicos are concentrating on their regular curriculum. But apart from that they require knowledge on current affairs, infectious diseases that are prevalent at present, their transmission, prevention and treatment. This will be obtained when regular seminars, group discussions, quiz programmes and CMEs –conducting regularly throughout the medical course in addition to their curriculum. Medical teaching institutions are continuously producing hundreds of health care providers every year. So it is must to conduct awareness programmes and should take feedback from students attended to know the efficacy of such programs which can improve their attitudes towards infectious diseases.

Conclusions

1. Awareness of students on HIV/AIDS was improved in post-intervention assessment.
2. Few students (11/150) only knew about p 24 antigen.
3. Students' knowledge about modes and non-modes of transmission of HIV still needs intervention.
4. Their concept on vertical transmission and its prevention has to be improved.
5. Regarding vulnerable groups, symptoms, testing strategies – their awareness was poor.

Recommendations: Being future clinicians, medical students should have complete knowledge on HIV/AIDS especially on HIV binding sites, modes and non-modes of transmission, vulnerable groups, symptoms, testing strategies, treatment and prevention

methods. To obtain this knowledge medical students should have teaching classes starting from their first year of curriculum. Clinical orientation should be imparted by posting them to PPTCT, ICTC & ART centers in small groups and encourage them to interact directly with HIV seropositive individuals. CMEs on HIV/AIDS should be conducted exclusively for medicos with their active participation. Their knowledge should be assessed at regular intervals by conducting tests.

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